

Circuit housing

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CLAIMS

1. Miniaturized circuit housing to encapsulate and provide
external contacts for at least one integrated circuit, in
particular of the flip-chip or wafer-level-package type,
with a housing floor, the lower surface of which bears
housing contact elements for making external contact and
the upper surface of which is electrically connected to
circuit contact elements on the lower surface of the
circuit,
characterized in that a housing lid is provided, in
particular opposite the housing floor, which presses the
circuit with the circuit contact element resiliently
against the upper surface of the housing floor, and between
the circuit contact elements and the housing floor there is
no connection that fixes their materials permanently
together.
2. Circuit housing according to Claim 1,
characterized in that the housing lid on its lower surface,
which faces the circuit, comprises at least one spring
element that presses the circuit against the housing floor.
3. Circuit housing according to Claim 2,
characterized in that the spring element or elements is/are
fixedly attached to the lower surface of the housing lid.
4. Circuit housing according to Claim 2,
characterized in that the spring element or elements is/are
loosely inserted between housing lid and circuit.

5. Circuit housing according to claim 1,
characterized in that the housing lid can itself act as a
spring because of its flexible construction.
6. Circuit housing according to claim 1,
characterized by a wall that substantially rigidly connects
floor and lid of the housing to one another at their
circumference and tightly seals off the interior of the
housing.
7. Circuit housing according to Claim 6,
characterized in that the wall is formed as part,
particularly an integral part, of the housing floor or lid
and is sealed to the respective other housing component in
a gas-tight manner.
8. Circuit housing according to Claim 7,
characterized in that the seal is formed by an external
plastic encapsulation of at least the butt joint between
the housing lid or housing floor and the wall.
9. Circuit housing according to claim 1,
characterized by being filled with a medium that is slow to
react, in particular an inert gas.
10. Circuit housing according to claim 1,
characterized by a flat four-cornered shape, with
substantially level and rectangular housing floor and
housing lid.
11. Circuit housing according to claim 1,
characterized in that the lid of the housing is rigidly
constructed and joined to the wall, or is shielded by a

rigid covering, in such a way that externally applied force is not transmitted to the circuit.

12. Circuit housing according to claim 1,
characterized in that the lid of the housing is constructed
as a heat sink in order to cool the circuit, in particular
bears cooling ribs or similar area-increasing structures.
13. Circuit housing according to claim 1,
characterized by a construction of the housing lid and/or
the spring element or elements such that the pressing force
exerted by these components between the circuit and the
housing floor is adjusted to suit the material of which the
circuit contact elements are made, in particular regarding
their flow behaviour and shape, in order to maintain a
permanently good electrical contact between the circuit
contact elements and the housing floor.
14. Circuit housing according to claim 1,
characterized in that the housing contact elements have
substantially the shape of a sphere or section of a sphere,
like solder balls.
15. Circuit housing according to claim 1,
characterized in that the housing contact elements are
constructed substantially as contact pins or flat contact
surfaces.
16. Circuit housing according to claim 1,
characterized in that the housing floor is constructed as a
circuit board or a section thereof.

17. Circuit housing according to claim 1,
characterized in that at the upper surface of the housing
floor, to make internal contact with the circuit contact
elements, there are provided inner housing contact surfaces
that in particular are constructed as flat elevations.

18. Circuit housing according to Claim 17,
characterized in that the inner housing contact surfaces
are made substantially of gold or a gold alloy and in
particular are formed by the stamping of bumps.

19. Circuit arrangement with an electronic circuit, in
particular of the flip-chip type, and a circuit housing
according to one of the preceding claims,
characterized in that the circuit contact elements are
constructed in the nature of bumps and consist
substantially of gold or a gold alloy.